

**Project No. 08S208**  
**Annual Report - December 1996**  
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**Mesa Verde Cooperative**

**Plant Materials Agreement**

**I. Introduction**

This progress report covers the 1996 activities conducted by the Upper Colorado Environmental Plant Center, Meeker, Colorado for the Mesa Verde Cooperative Plant Materials Agreements.

No plant collection trips were made by Plant Center personnel in 1996. Park Service personnel collected a small quantity of snowberry seed, and that was the only seed collection from the park in 1996.

The original Mesa Verde Plant Materials Agreement involved seed production for eight species of grasses and forbs, and live plant production for nine species of shrubs and trees. In addition, five species of shrubs listed for live plant production are also designated for quantities of seed to be collected. Also, an additional six species had some consideration (Datiil yucca, Mentzelia multiflora, corymbed eriogonum, Patterson locoweed, Astragalus schmollae and Tarragon). In 1995 the Mesa Verde Plant Materials Agreement was amended and the targeted species for the amended agreement are listed.

**II. Original Contract Species**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Symbol</b>	<b>Targeted Production of Seed (S) or Live Plants (L)</b>	<b>Amounts New Proposal</b>
<b><u>Grasses</u></b>			<b><u>PLS</u></b>	<b><u>PLS</u></b>
Western wheatgrass (9024897)	<u>Pascopyron smithii</u> ( <u>Agropyron smithii</u> )	PASM	550 (S)	160 (S)
Slender wheatgrass (9024892)	<u>Elymus trachycaulus</u> ssp. <u>trachycaulus</u> ( <u>Agropyron trachycaulum</u> )	ELTRT	500 (S)	840 (S)
Salina wildrye (9024893)	<u>Leymus salinus</u> ssp. <u>salinus</u> ( <u>Elymus salinus</u> )	LESAS	200 (S)	67 (S)
Mutton grass (9024881)	<u>Poa fendleriana</u>	POFE	20 (S)	104 (S)
<b><u>Forbs</u></b>				
Yarrow (9024883)	<u>Achillea millefolium</u>	ACMI2	2 (S)	50 (S)
Blueleaf aster (9024870)	<u>Aster glaucodes</u>	ASGL3	40 (S)	3 (S)
Hairy golden aster (9024873)	Heterotheca villosa ( <u>Chrysopsis villosa</u> )	HEVI4	80 (S)	38 (S)
Louisiana sage (9024886)	<u>Artemisia ludoviciana</u>	ARLU	40 (S)	65 (S)

**Shrubs**

Utah serviceberry (9024869)	<u>Amelanchier utahensis</u>	AMUT	15 (S) 1610 (L)	25 (L)
Rubber rabbitbrush (9024876)	<u>Chrysothamnus nauseosus</u>	CHNA2	2 (S)	840 (L)

**II. Contract Species continued**

Common Name	Scientific Name	Symbol	Targeted Production of Seed (S) or Live Plants (L)	Amounts New Proposal
<b>Shrubs (continued)</b>			<b>PLS</b>	<b>PLS</b>
Mountain mahogany (9024874)	<u>Cercocarpus montanus</u>	CEM02	5 (S) 1760 (L)	3 (S) 500 (L)
Snowberry (9024898)	<u>Symphoricarpos oreophilus</u>	SYOR2	15 (S) 1540 (L)	4 (S) 700 (L)
Gambel oak (9024895)	<u>Quercus gambelii</u>	QUGA	1110 (L)	10 (S) 250 (L)
Fourwing saltbrush (9024878)	<u>Atriplex canescens</u>	ATCA2	440 (L)	950 (L)
Antelope bitterbrush (9024872)	<u>Purshia tridentata</u>	PUTR2	6 (S) 550 (L)	13 (S) 800 (L)
<b>Trees</b>				
Pinyon pine (9024899)	<u>Pinus edulis</u>	PIED	75 (L)	10 (S) 445 (L)
Utah juniper (9024880)	<u>Juniperus osteosperma</u>	JUOS	75 (L)	2 (L)
<b>Other Species</b>				
Tarragon (9024875)	<u>Artemisia dracunculus</u>	ARDR4		
Patterson locoweed (9024896)	<u>Astragalus pattersonii</u>	ASPA14		
Datil yucca (9024887)	<u>Yucca baccata</u>	YUBA		
Corymbed eriogonum (9024888)	<u>Eriogonum corymbosum</u>	ERC014		
(9024894)	<u>Astragalus schmollae</u>	ASSC5		

(9024871)

Mentzelia  
multiflora

MEMU3

The Mesa Verde Plant Materials Agreement as amended in 1995 involves the following targeted species:

Common Name	Scientific Name	Targeted Seed	Production Live Plants Tubling Bareroot	
<b><u>GRASSES</u></b>				
Western Wheatgrass	<u>Pascopyron smithii</u>	160	-	-
Slender Wheatgrass	<u>Elymus trachycaulum</u>	840	-	-
Salina Wildrye	<u>Leymus salinus</u>	67	-	-
Muttongrass	<u>Poa fendleriana</u>	104	-	-
<b><u>FORBS</u></b>				
Yarrow	<u>Achillea millefolium</u>	50	-	-
Blueleaf aster	<u>Aster glaucodes</u>	3	-	-
Hairy goldenaster	<u>Chrysopsis villosa</u>	38	-	-
Louisiana sage	<u>Artemisia ludoviciana</u>	65	-	-
Low penstemon	<u>Penstemon linarioides</u> (9070862)	-	500	-
Spur lupine	<u>Lupinus caudatus</u> (9070865)	-	500	-
Evening primrose	<u>Oenothera caespitosa</u> (9070866)	-	500	-
<b><u>SHRUBS</u></b>				
Utah serviceberry	<u>Amelanchier utahensis</u>	-	-	25
Gambel oak	<u>Quercus gambelii</u>	10	-	250
Mountain mahogany	<u>Cercocarpus montanus</u>	3	100	400
Snowberry	<u>Symphoricarpos oreophilus</u>	4	300	400
Fourwing saltbush	<u>Atriplex canescens</u>	-	150	800
Antelope bitterbrush	<u>Purshia tridentata</u>	13	150	650
<b><u>TREES</u></b>				
Pinyon pine	<u>Pinus edulis</u>	10	-	445
Utah juniper	<u>Juniperus osteosperma</u>	-	-	2

### **III. Seed Collection and Condition Information**

#### **Introduction**

Only one species was collected from the park in 1996. Park Service personnel collected 115 grams (dry weight) of snowberry seed in 1996.

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1. Snowberry (9024898) - August 2 - Chapin Mesa - Far view lodge - 115 grams (dry weight) - 42.00 grams clean seed.

Target - 4 PLS - plus 300 tublings- 400 bareroot

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#### **IV. Seed Production**

##### **Harvesting and conditioning**

1. Mutton grass - Seed crop harvested June 5 - 0.9 acre produced 30.0 lbs. clean seed. Total seed 30.0 lbs. -10 PLS to park March 1996 - all other seed delivered to the park in September 1996.
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2. Slender wheatgrass - Seed crop harvested July 8 - 0.78 acre produced 25.5 lbs. clean seed. Total seed 207.9 lbs. PLS (not including 1996). 20.0 PLS to park March 1996 - delivered 276 PLS (1993 crop) and 71.9 PLS (1995 crop) to park in September 1996.
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3. Yarrow - Seed crop harvested August 13 - increased to 0.30 acre in 1995-produced 27.5 lbs. clean seed. Total seed 25.59 lbs. PLS (not including 1996).
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4. Louisiana sage - Seed crop harvested October 7 - 0.18 acre produced 5.96 lbs. clean seed. Total seed 49.77 lbs. PLS (not including 1996).
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5. Hairy golden aster - Seed crop harvested August 12 - September 10 - 0.75 acre produced 5.1lbs clean seed. Total seed 15.54 lbs. PLS (not including 1996).
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6. Salina wildrye - Seed crop harvested July 11 - 0.5 acre produced 343.0 gms. clean seed. Total seed (only 1996 harvest) 1995 seed crop (1.26 PLS) to park March 1996 - 1/2 pickup load sprigs delivered to the park October 24, 1996.
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7. Western wheatgrass - Seed crop harvested August 14 - 0.9 acre produced 2.3 lbs. clean seed. Total seed 87.03 PLS (not including 1996) - 20 PLS to park March 1996 - 1/2 pickup load of sprigs delivered to the park October 24, 1996.
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8. Evening Primrose (1996 planting) - hand harvested 4.00 grams - September 9 to October 9.
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#### **V. Transplant Production**

##### **Introduction**

This section updates the 10 ft. Row Plantings.

##### **Row Plantings**

Five new 10 feet rows were added to the planting in 1994 to serve as a test for producing Utah serviceberry. All five rows were watered in May 1995 and kept moist. April and May of 1995 were wet months. Several of these rows did have seedlings in May of 1995 and many were still present in August of 1995. A hail storm in late May was probably responsible for the loss of some of the seedlings recorded on August 31, 1995. Row 29 (16 hulled seeds in groups at 1 foot intervals) produced the most seedlings in May and August.

In 1996, three 10 ft. rows were added to the planting. On June 13, 1996 a row of each of the three forbs added to the contract in 1995 was planted. Three grams of seed for each was planted in each 10 ft. row. Seeds were stratified for approximately 120 days at about 40 F. Seed for low penstemon were from a lot received in early 1995 (2 grams) and a lot received in late 1995 (1 gram).

Also in 1996, a planting of evening primrose grown in the greenhouse was added. Seventy eight plants were planted on June 16 and 16 plants were added on August 23. These plants produced numerous sprouts and seed was collected from September 9 to October 9, amounting to 4.00 grams of clean seed.

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Row 28. Utah serviceberry - Four seeds unhulled in clumps at one foot intervals - July 1994 seed - planted August 2, 1994. - On May 15, 1995 - 11 seedlings - on August 31, 1995 - 4 plants - on August 23, 1996 - 1 plant

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Row 29. Utah serviceberry - 16 hulled seeds in groups at one foot intervals - July 1994 seed - planted August 2, 1994. On May 15, 1995 - 43 seedlings - on August 31, 1995 - 14 plants - on August 23, 1996 - 3 plants

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Row 30. Utah serviceberry - 30 seeds per ft. of row (1990 - 1991 blend of seed) - planted August 2, 1994. On May 15, 1995 - 9 seedlings - on August 31, 1995 - 2 plants - on August 23, 1996 - 1 plant

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## V. Transplant Production

### Row Plantings - continued

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Row 31. Utah serviceberry - unhulled seeds in clumps at one foot intervals - September 1994 seed - planted October 4, 1994. On May 15, 1995 - 0 seedlings - on August 31, 1995 - 0 plants - on August 23, 1996 - no plants

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Row 32. Utah serviceberry - 6 hulled seeds per ft. row September 1994 seed - planted October 4, 1994. On May 15, 1995 - 2 seedlings- on August 31, 1995 0 plants - on August 23, 1996 - no plants

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Row 33. Low penstemon - planted 3 grams of seed (from two separate collections in 1995) in 10 ft. of row on June 13, 1996 - rows were watered from time of planting to August 15, 1996 - no plants August 23, 1996.

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Row 34. Evening primrose - planted 3 grams of seed in 10 ft. of row on June 13, 1996 - rows were watered from time of planting to August 15, 1996- plants have sprouts - 5 plants plus sprouts August 23, 1996.

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Row 35. Spur lupine - planted 3 grams of seed in 10 ft. of row - rows were watered from time of planting to August 15, 1996 - 1 plant has flowers - 8 plants on August 23, 1996.

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### Field Scale Transplant Nursery

In 1994, three additional plant materials were added to the nursery on September 28. In August, 1996 an estimate of the number of plants in these rows was made. These numbers are included in the listing below.

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1. Mountain mahogany - August 2, 1996 - Approximately 2 plants.
  2. Snowberry - August 2, 1996 - Approximately 200 plants.
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3. Antelope bitterbrush - August 2, 1996 - Approximately 400 plants.
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### **Plant Materials Provided to the Park in 1996**

Plant Materials were provided to the park three times in 1996. On March 4, 1996, seed and plants were shipped to the park as requested ( see order No. 960024). Then on September 30, 1996 seed was delivered as a result of summer fires in the park (see order No. 960055). Finally, on October 24, 1996 a pickup load (half of the load was from each species) of sprigs from western wheatgrass (9024897) and salina wildrye (9024893) was delivered to the park (see order No. (960057).

### **Summary**

1. The Mesa Verde Plant Materials Agreement was amended in 1995 and the amended list of targeted species is listed.
2. The only plant collection from the park in 1996 was done by park service personnel.
3. Five 10 ft. rows were planted in 1994 as a test for Utah serviceberry and were evaluated in 1996.
4. No plants were lifted in 1995 for bare root delivery to the park.
5. Three 10 ft, rows were added as a test in 1996 (low penstemon, evening primrose and spur lupine).
6. Plant materials were provided to the park three times during 1996.